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ABSTRACT

This study investigated the nature of affective reactions of college students in a real-life testing situation, and the relationship of these affects to causal attributions and perceptions of success or failure. Ninety students responded to questions concerning their emotions after receiving results of an examination and indicated the contribution of four causal factors (effort, ability, task difficulty, and luck) as reasons for their success or failure. Principal component analyses of 14 affects resulted in two factors: (1) general happiness, pride, and satisfaction: and (2) surprise. Regression analyses indicated that perception of success or failure accounted for a very high proportion of the variance, although internal causal attributions were related to positive affect. A procedure for analyzing attributions as patterns rather than singular factors is presented. (Author)

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Causal Attributions and Affect in a Real-life Testing Situation[1]

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Paper presented at the 1980 Annual Convention of the American Educational Research Assosiation, Boston, April 11.

1 The authors would like to thank Margaret M. Clifford and Robert A. Forsyth for their helpful comments and suggestions on an earlier draft of the manuscript.

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Abstract

This study investigated the nature of affective reactions of college students in a real-life testing situation, and the relationship of these affects to causal attributions and perceptions of success or failure. Ninety students responded to questions concerning their emotions after receiving results of an examination and indicated the contribution of four causal factors (effort, ability, task difficulty, and luck) as reasons for their success or failure. Principal component analyses of 14 affects resulted in two factors, 1) general happiness, pride, and satisfaction; and 2) surprise. Regression analyses indicated that perception of success or failure accounted for a very high proportion of the variance, although internal causal attributions were related to positive affect. A procedure for analyzing attributions as patterns rather than singular factors is presented.

Causal Attributions and Affect in a Real-life Testing Situation[1]

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Running Title: Attributions and Affect

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Weiner and his colleagues (Weiner, 1977, 1979; Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum, 1971) have presented a cognitive interpretation of achievement motivation which has generated a substantial amount of research. Based on Heider (1958), Weiner and others have investigated the extent to which perceptions of causality influence expectancies of future performance, affective reactions, and eventually subsequent performance. Although a large number of research investigations support the theoretical contentions, there have been few studies which have examined the theory in the context of real-life achievement situations (Bar-Tal & Darom, 1979; Weiner, 1979). The present experiment investigated one aspect of the Weiner model, the relationship between perceptions of causality to affective reactions toward an achievement outcome, in a real-life testing situation.

Previous research has indicated that different attributions tend to foster different affects or emotions, but the studies have limited generalizability and offer contradictory findings. In the first set of experiments in the area (Weiner & Kukla, 1970; Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971) the general conclusion was that internal attributions (effort, ability) generate more intense affective reactions than external attributions (task difficulty, luck). The measure of "affect" in these experiments was a pride-shame dimension, and it was found that greatest pride for success and shame for failure was reported when the subject attributed the cause to ability or effort, rather than task difficulty or luck. The experiments also indicated that effort ascriptions generated more pride than ability ascriptions. Additional research, utilizing the same experimental paradigm, has replicated these findings (Reimer, 1975; Weiner, 1974; Weiner & Kukla, 1970), but the nature of the studies limit the theoretical utility of the results. First, these studies have typically

used contrived situations in which subjects projected the feelings of others after reading a short paragraph. Second, only one causal attribution was used in each paragraph. Third, the measure of affect was limited to a single dimension of pride-shame.

Research done in more real-life like settings has resulted in contradictory findings (Arkin and Maruyama, 1979; Bailey, Helm and Gladstone, 1975; Covington and Omelich, 1979; Frieze, Snyder, and Fontaine, 1977; Nicholls, 1976; and Sohn, 1977). Bailey et. al., Frieze et. al., and Arkin and Maruyama assessed attributions and affect of college students after taking an actual examination in a college course. All three studies found that outcome (success or failure) was the primary determinant of affect, regardless of whether the internal ascription was effort or ability. Bailey et. al. found that task ease generated as much positive affect as internal factors, although this result could have been a function of the measure of "affect," since several items (good-bad, satisfied-dissatisfied, ashamed-proud, and happy-sad) were combined to assess affect rather than using a single pride-shame dimension. Frieze et. al. also found positive affect (pride-shame) related more to ability, not effort, and that success and failure were more highly related to actual performance than internal or external ascriptions. Arkin and Maruyama, assessing college students' reactions to a course and instructor, used test anxiety as a measure of affect. They found course and instructor ratings of successful students positively related to internality of attributions (the more internal, the more positive), while anxiety of unsuccessful students was negatively related to internality. Nicholls, by asking college students under what conditions they would feel greatest pride or shame, found that effort was more important in determining affect

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for courses with no long-term consequences, but that ability was valued more if the performance was related to long term goals. Using a similar procedure, Sohn showed that happiness is equally influenced by an ability as by an effort ascription, whereas pride-shame is affected most by effort ascriptions. Covington and Omelich, using path analysis techniques of college students' attributions and affect (pride-shame) following failure on an actual psychology examination, found that affect depends in part on internal attributions, but in a direction opposite to Weiner's predictions. Together, these studies suggest that there may be limitations on applying the theoretical model proposed by Weiner to real-life situations. However, this suggestion can only be tentative because of the variations in the above studies with respect to differences in methodology (e.g., assessment of attributions and affect, populations, nature of "real life" situation).

Weiner, Russell, and Lerman (1978) have suggested that different affects may be associated with different attributions. After reducing an initial list of 225 emotions to 85, they had subjects read a situational description designed to manipulate attributions and report the affective intensity they felt the person in the story would feel. Results indicated sets of affects associated with success or failure, regardless of ascription. Affects such as pleased, happy, satisfied, good, contented, proud, delighted, and glad were important for success, and uncheerful, displeasure, despair, and upset for failure. They also reported that particular affects were associated with specific descriptions. For success outcomes luck generated feelings of surprise; unstable effort, activation; stable effort, relaxation; others' effort and personality, self-enhancement; and own personality, self-enhancement. Failure outcomes indicated ability to generate feelings of incompetence; effort, guilt or shame; personality, resignation; others' effort,

aggression; and luck, surprise. While this study provides some evidence that there may be diverse qualitative differences in feelings associated with particular causal ascriptions, the contrived nature of the research, in which a subject projects feelings of others, limits generalizability to real life circumstances.

The research reported in this paper was designed to investigate the nature of affect associated with causal ascriptions in a real life setting. There were two primary purposes, 1) to determine the extent of different affects reported after receiving the results of an actual examination and 2) to assess the relationships of causal attributions to affects. In investigating whether different affects are reported, a measure of perceived value was included as exploratory. Although not an emotion, value is an important evaluative component of attitudes separate from affect (McMillan, in press), and may be related to causal ascriptions. Also, perceived value is theoretically important from an expectancy/value model of behavior (e.g., Atkinson, 1964; Rotter, 1954). A second exploratory feature was included in the analyses. In the Weiner et. al. 1978 study, task importance was held constant in every story; it was always "very important" to receive a high score. It seems possible, based on research in social psychology concerning the effect of task importance (e.g., Pittman, Scherrer and Wright, 1977), that this situational variable could have an impact on both the ascriptions cited and the affect associated with a particular ascription. Thus, perceived importance of doing well on the exam and importance of learning the material were included in the analyses. It was anticipated, based on previous research conducted in real life settings, that once the impact of "success" or "failure" is accounted for, causal ascriptions will contribute a small amount in predicting affect.

Method

Subjects

The subjects were students enrolled in two sections of an undergraduate educational psychology class at the University of Iowa. Both sections were taught by the same instructor during the 1978 fall semester. The first section was comprised of 21 males and 48 females (22 sophomores, 28 juniors, and 19 seniors), and the second had 6 males and 35 females (17 sophomores, 16 juniors, and 8 seniors).

Procedure

Each section took the same midterm exam during the sixth week of the semester. On the next class session the students were told that the exams were graded, and they were asked to participate as subjects in a research project investigating "attitudes toward testing." The students completed an informed consent form and were told that their responses would be anonymous and would have no bearing on course grades. All students agreed to participate and were given Part I of the experiment, a six item questionnaire designed to assess the student's pre-attributions for their outcome - "pre" in the sense that they were answered prior to handing back the tests. The questions assessed the following using a 7-point Likert type scale: effort (Much more than usual -- about the same as usual -- much less than usual); how well the student usually did in the area (very well -- O.K. -- very poorly); importance of doing well on the test (very important -- somewhat important); test difficulty (very difficult -- very easy); and confidence that they did well (very confident -- not confident). After completing these questions, the tests were returned to the students, discussed, and a distribution of scores with grades was presented. The raw scores ranged from 2[illegible] to 50, the mean was 40, and the standard deviation was 6. For both

sections together there were 14 As, 25 Bs, 37 Cs, 20 Ds, and 9 Fs given to the students as grades. Near the end of the same session students were asked to respond to a few more questions (Parts II and III). Part II was a listing of 15 affects on an 8-point scale (anchored with the terms "not at all" and "extremely"), and students indicated their feelings about the test by making a check on the scale. The affects included those Weiner et. al. (1978) had found as either particularly salient for success or failure outcomes, (e.g., pleased, happy, shame) and those which were discriminating (e.g., competence, surprise) for the four most common causal ascriptions (effort, ability, task difficulty, and luck). The 15th word, valuable, was included in the list of affects as exploratory. In Part III the students were asked to indicate the extent to which they considered their performance a success or failure by checking the appropriate area on a 14-point scale (extreme success, not much of a success or failure, extreme failure), and were asked to indicate to what degree (by percentage adding to 100%) each of the four causal ascriptions was responsible for their performance. Finally, students were asked to indicate the test score range their score fell in on the questionnaire to enable the investigators to identify "objective" performance as well as perceived performance. The students attached Part I to Parts II and III and returned them to the instructor, and were then completely debriefed about the study.

Results

The intercorrelations of the 15 affect variables were examined to investigate whether separate affects were reported. Several correlated at .90 and higher. Further, each of the 15 affects was not considered to represent a unique aspect of the affective domain. Thus, a data reduction

procedure was implemented. A principal component analysis was performed on the 14 affect variables. Due to the exploratory nature of the 15th word (valuable), it was not included in data reduction and was, instead, considered as a separate criterion measure. The analyses resulted in the creation of two orthogonal components, labeled C1 and C2, each a combination of all 14 affect variables. Table 1 illustrates the affect loadings of the components. C1 seems to suggest the presence of a singular positive emotional

Table 1

response, in which the student feels happy, competent, proud, etc. C2 reveals a feeling of surprise, a reaction to an unexpected outcome which could be either positive or negative. C1 and C2 component scores were computed for each student. These scores, plus each student's score on the "valuable" affect variable (C3) were the criterion measures in subsequent analyses, rather than analyzing each affect separately.

A 2 x 2 MANOVA was conducted to determine whether the student's class section or sex should be taken into account in any further data analyses. Results indicated no significant section or sex effect.

Stepwise multiple regression techniques were used to determine the extent to which each student's 10 attributional responses regarding test performance predicted affects generated after receiving test results (6 responses before receiving test results, 4 after). Two additional independent variables, the student's perceived success or failure on the test (PSF), and the actual score range the student's test score fell within (SR), were forced into all regression equations first since the question of interest concerned how much pre- and post-test attributions aid in predicting affects once actual outcome variables (assumed to be assessed by PSF and SR) are

taken into consideration. Table 2 indicates the results of the regression analyses for C1, C2, and C3.

Table 2

For C1 (happy, proud, content, etc.) only PAT 3 (post-attribution to task difficulty) and X1 (pre-attribution to effort) were found to add significantly once PSF and SR were taken into consideration. For C2 (surprise), PSF and SR were not very powerful predictors, but again only 2 of the attributional variables were found to add significantly, PAT 2 and X3 (post-attribution to effort and pre-attribution to importance of doing well). Finally, only PAT3 was found to aid in predicting C3 (valuable) once PSF and SR were taken into consideration.

An examination of the regression coefficients for the C1 regression equation suggests that students' feelings of competence, happiness, etc., are positively related to the amount of effort they report exerting in studying for the test and negatively related to the task difficulty. Feelings represented by C2 (surprise) are positively related to the degree to which the students felt effort was responsible for their performance, and positively related to the importance of doing well. Reported value (C3) was negatively related to task difficulty. Thus, students felt happiest when they report high effort in studying for the test and when the percentage of outcome explained by task difficulty is low. As importance of the task and post-attribution to effort increased so did surprise, and value increased as the percentage of the outcome due to task difficulty decreased.

A second analysis was done which considered all four post-attributions simultaneously as an attributional pattern. Subjects were grouped in a post hoc fashion on the basis of their post-attribution profiles, and additional analyses were done on the basis of these profiles. Four profiles were identified,

and students were classified into 1 of 4 groups on the basis of these 4 profiles. Students whose profiles did not match any of the 4 were not considered in subsequent analyses. Group 1 consisted of 28 students, all of whom had high post-attributions on effort with low attributions on all three other factors. Group 2 consisted of 14 subjects who had high post-attributions to ability with low attributions on all three other factors. Group 3 consisted of 11 subjects who had high post-attributions to task difficulty with low attribution on all three other factors. Finally, group 4 consisted of 15 subjects who had high attributions to both ability and effort, but low attributions on task difficulty and luck. Representative profiles for each group are illustrated in Graph 1.

Graph 1

A one way MANCOVA was used to determine if the affects reported by students in one profile were significantly different from affects of students in other profiles. Perceived success and failure (PSF) and score range (SR) were used as covariates to control for the effect of outcome on affects. The MANCOVA was significant ($p < .04$), and univariate ANCOVAs for each affect are reported in Table 3. The means and variances of each group's affects, adjusted for the effects of PSF and SR, are reported in Table 4. The results indicate that the groups are significantly different for C3 (value), but not C1 (happiness) or C2 (surprise). An analysis of the cell means and the direction of the regression coefficients indicates that students who attribute their outcome primarily to task difficulty report they value the test less than students who attribute the outcome to effort or ability. No significant differences between groups 1, 2, or 4 (effort, ability and effort/ability, respectively) are observed for C3. The ANCOVA for C1

approaches significance, ($p<.10$) and the cell means indicate that students who attribute their outcome primarily to effort report more happiness, pride, etc., than students who report high ability or task difficulty attributions. However, given the influence of perceived success and failure, (accounting for 71% of the variance), the relationship of the effort attribution to affect is small.

Tables 3 & 4

Discussion

The results of the principal component analyses indicates, for these students, the presence of two distinct affects. There was no evidence of a meaningful differentiation between enjoyment, contentment, pride, etc. Rather, these affects loaded very high with a single component. The affects of surprise and astonishment were distinct from those comprising C1 and together represented the second component. The exploratory factor, "valuable" did not correlate very highly with other affects (.2 to .4) and seemed to represent a distinct reaction which deserves further study. However, there are limitations to the suggested interpretation of the "affect" results. First, only 15 affects were assessed, and while they represented the most common affects reported by students in earlier research by Weiner, the inclusion of additional affects might generate other distinct components. For instance, affects of "relaxation," "activation," "gratitude," and "resignation" might establish other components. Second, a different form of measurement of the affects might give different results. This study used a continuum from "not at all" to "extremely" for each affect. Using adjective

pairs (enjoy-hate) or free responses might provide different results since "not at all" doesn't always imply the opposite of a positive affect (i.e., delighted-disgusted might be answered differently than extremely delighted-not at all delighted).

The results of the regression analyses for C1, C2, and C3 using both pre- and post-attributions suggests that perceived success/failure is clearly the most important factor related to affect. For C1 once perceived success/failure was entered into the analysis, the remaining variables added only 5% to the total variance accounted for. This finding is consistent with other studies in real-life situations (Bailey, Helm & Gladstone, 1975; Arkin & Maruyama, 1979; Frieze, Snyder and Fontaine, 1977). As would be predicted on the basis of previous research (Weiner & Kukla, 1970), happiness, pride, etc. are greater as external causal attributions become smaller (in this case the contribution of task difficulty), but there was no evidence of a positive relationship between C1 and internal post-attributions. The pre-attribution of degree of effort exerted in studying for the test was positively related to C1 and since this was a perception reported before students knew their test scores, it is not technically a causal factor. It may represent, then, a condition which influences affects, regardless of post-test causal attributions.

The regression analyses for C2 suggests that a small positive relationship exists between the affect of surprise and post-attributions to effort. This relationship may indicate that as effort becomes a more important attribution in explaining performance, surprise increases. This result is somewhat contradictory to other research which indicated surprise is primarily related to luck (Weiner et. al., 1978). It seems reasonable, however, that students who scored high on the test and were pleasantly surprised would

report that effort, an unstable internal attribution, was also high. That is, their perception of effort as contributing to their score could increase after receiving a surprisingly high test score. Students who scored low as expected, on the other hand, would be more likely to report that effort was not an important causal factor, since high effort/low score would suggest that the student did not have the ability to do well. The negative relationship of importance of doing well and surprise suggests that students who reported that performance was not important and received a high score would be pleasantly surprised.

The negative relationship between C3 (valuable) and the task difficulty post-attribution implies that value increases as the external attribution of task difficulty decreases. This result is consistent in direction with C1 and with previous research, though "valuable" has not been included as a criterion measure in other studies. The analyses may have failed to pick up the opposite relationship for internal attributions due to the fact that post-attributions were assessed in an ipsative fashion, which resulted in luck being given almost no percentage for causality. Thus, the internal attributions were split between ability and effort, while task difficulty was the only external attribution which received a significant part of the 100% total. However, the single most important impression that is evident from all three regression analyses, despite the difficulty in using ipsative measures, is the relatively small contribution both pre- and post-attributions make in explaining affective reactions.

The MANCOVA done to investigate whether reported affects were different for the four profiles indicated that value was higher for profiles in which internal attributions were higher than attributions to task difficulty. No other statistically significant results were attained but a similar pattern

of results approach significance for C1 (happiness, pride, etc.). The difference between the adjusted profile group cell means for C1 also indicates, however, that students who attributed the outcome primarily to effort (group 1) reported greater happiness, pride, etc. than those who reported ability as the primary attribution (group 2). These results are also consistent with previous research (Weiner & Kukla, 1970) which suggests that internal attributions maximize positive affect and external attributions maximize negative affect.

The results of this study provide several implications for attribution/affect questions. First, it seems that students may react affectively in a generalized, global manner immediately following knowledge of test results. The major limitation to this suggestion is that results attained may be unique for the subjects used, college students, and the nature of the data analyses, which obscures individuals who may have distinct affective reactions. That is, there may not have been sufficient individual differences among the students to capture distinct emotions in the principal component analyses. If this was true, then the results represent the first level of Weiner's (1979) recent conceptualization of how affect is related to attributions. He suggests that, based on results of college students' reactions to particular scenarios, following this generalized reaction a number of discrete affects are generated, based on different attributions. It seems that the only way to test Weiner's hypotheses is to research these relationships further in real life situations since his assumes that such scenarios actually occur. Considering all individuals together, though, this generalized affective reaction seems clear. Second, it seems that perceptions of value are distinct from this generalized affect and may be significantly related to attributions. It is both interesting and encouraging that value is not

predicted very well by success or failure outcomes. The results also suggest that task importance may be related to perceptions of value. Third, task outcome and perceptions of success or failure seem to be of primary importance in predicting affect. A recent article by Weiner (1979) suggests that the importance of task outcome is major but that over time the attributions made for success or failure will have a greater impact on the individual's self-esteem. This hypothesis was not tested in this study, and it may be that the relatively small impact of attributions found may be partially a function of the immediacy of the assessment.

While the lack of much of a relationship between affect and attribution could be explained by Weiner's (1979) reconceptualization stated above, Covington and Omelich (1979) provide an alternative hypothesis. They suggest that attributions are reactions to rather than causes of achievement, and as postdictive reactions attributions are prone to reflect self-serving biases. As such, they obscure their causal role as information-processing agents. Thus, individuals may form attributions, depending on an outcome, which maintains a high sense of self-worth. The presence of such self-serving rationalizations may obscure cognitively based attributional linkages. A third hypothesis seems equally plausible, that in real life individuals simply don't process complex attribution-affect relationships. In most circumstances, individuals may not mentally construct a distinct attribution or distinct affects. The reaction, rather, is global and simple. Further research is needed to investigate this question to determine the extent to which children at different ages meaningfully process various attributions and affects.

Fourth, the results of this study suggests that while outcome is the most important factor in determining reactions, internal attributions are

related to both affect and value. Fifth, the profiles generated from the ipsative measures of attributions provides an alternative way to conceptualize causal attributions. The profiles represent patterns which represent more precisely the relative contribution of each attribution. Since causal factors other than the four used in this study could also be important in certain situations, and since the patterns resulting from these studies are based on a relatively small number of subjects, further research of how attributions can be represented as integrative patterns rather than singular factors is needed. It would be useful, for instance, to investigate whether attributional patterns could be used in more controlled, experimental research as well as in an ex-post facto manner as is demonstrated in this study.

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Table 1

Principal component analysis factor loadings for affects.

	C1	C2
surprised	-0.12690	0.70818
happy	0.95296	0.07937
competent	0.86512	0.04030
satisfied	0.94198	0.08171
hopeless	-0.62894	0.42377
delighted	0.92932	0.18855
proud	0.94285	0.06104
pleased	0.96246	0.09576
inadequate	-0.77675	0.31409
good	0.90750	0.05707
contented	0.91503	0.12729
upset	-0.77150	0.32659
astonished	-0.23521	0.80753
elated	0.68672	0.52651
Eigenvalue	9.0208	1.8982
Percent variance accounted for	64.4	13.16

Table 2

Summary of Stepwise Multiple Regression for C1, C2, and C3[1,2]

C1 (competent, happy, proud, etc.)

Source	df	MS	F	P	R^2	regression coefficients
Regression	4	16.88	68.73	<.001	.77	
PSF,SR	2	31.52	128.35	<.001	.72	-.50
PAT3	1	2.64	10.73	<.01	.03	-.37
X1	1	1.84	7.50	<.05	.02	-.01
Error	83	.25				

C2 (surprised)

Source	df	MS	F	P	R^2	regression coefficients
Regression	4	3.66	4.22	<.01	.17	
PSF,SR	2	2.38	2.74		.05	.30
PAT2	1	6.82	7.86	<.05	.08	.01
X3	1	3.06	3.53		.04	-.25
error	83	.87				

C3 (value)

Source	df	MS	F	P	R^2	regression coefficients
Regression	3	18.18	10.19	<.001	.27	
PSF,SR	2	15.95	8.94	<.001	.16	-.15
PAT3	1	22.65	12.70	<.001	.11	-.04
error	83	1.78				

1. PSF and SR were forced into each equation first.

2. High values of PSF were keyed to indicate failure; high values of SR were keyed to indicate low scores; high values of PAT 3 were keyed to indicate high attribution to task difficulty; high values of X1 and X3 were keyed to indicate low effort and low importance, respectively.

TABLE 3

Analysis of Covariance of Affects for Profile Groups

C1

Source	df	MS	F	P	R^2	regression coefficients
Regression	5	10.18	33.41	<.005	.739	
PSF, SR	2	24.47	80.23	<.005	.710	-.59
Group/PSF, SR	3	.66	2.16		.029	-.46
Error	59	.305				

C2

Source	df	MS	F	P	R^2	regression coefficients
Regression	5	.670	.70		.056	
PSF, SR	2	.813	.855		.027	.14
Group/PSF, SR	3	.572	.601		.029	.96
Error	59	.951				

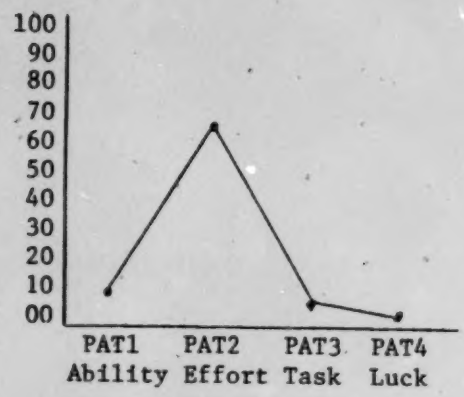
C3

Source	df	MS	F	P	R^2	regression coefficients
Regression	5	7.28	4.30	<.005	.267	
PSF SR	2	8.69	5.14	<.01	.127	-.26
Group/PSF SR	3	6.34	3.75	<.05	.140	-.61
Error	59	1.69				

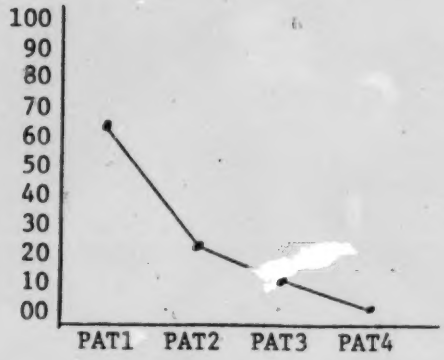
TABLE 4

Means and standard errors
of profile groups for C1, C2 and C3
adjusted for the effects of PSF and SR

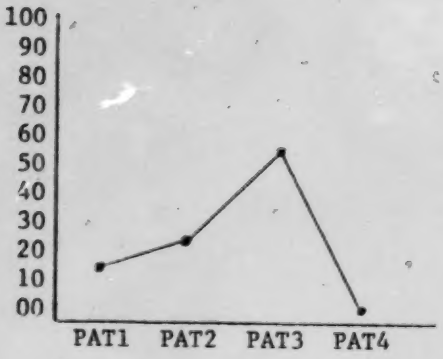
		Profile Group			
		1	2	3	4
C1	$\bar{X}$	.25	-.10	-.23	.10
	S_e	.11	.16	.77	.14
	n	28	14	11	15
C2	$\bar{X}$	.06	-.14	-.03	-.36
	S_e	.19	.27	.31	.25
	n	28	14	11	15
C3	$\bar{X}$	4.81	4.88	3.24	4.52
	S_e	.26	.37	.42	.34
	n	27	13	12	15



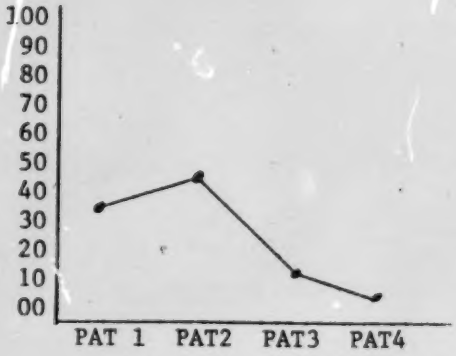
GROUP 1
N = 28



GROUP 2
N = 14



GROUP 3
N = 11



GROUP 4
N = 15

	PAT 1 (Ability)	PAT 2 (Effort)	PAT 3 (Task Difficulty)	PAT 4 (Luck)
Group 1	15.72 (9.35)*	67.69 (12.00)	12.48 (9.66)	4.10 (4.97)
Group 2	55.57 (14.93)	23.57 (7.70)	14.64 (11.00)	6.21 (7.01)
Group 3	19.17 (9.50)	24.17 (7.70)	50.00 (7.39)	6.67 (8.62)
Group 4	38.60 (3.89)	41.33 (5.16)	12.67 (5.30)	7.40 (4.47)

Graph 1. Profiles, means and standard deviations[1] of four post-attribution patterns.

[1]The mean number indicates percentage attributed to each factor.

*Standard Deviation in parentheses.